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| 10/782,227 | 02/19/2004 | Charles Edward Akers JR. | 2003-0701.01 | 5201 |

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| EXAMINER |
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SHOSHO, CALLIE E

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| ART UNIT | PAPER NUMBER |
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1714

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,227

Applicant(s)

AKERS ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/19/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-8 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Sun et al. (U.S. 2004/0127619).

Sun et al. disclose thermal ink jet ink comprising 0.1-10% pigment, dispersant, humectant and surfactant. The pigment includes Pigment Yellow 74, Pigment Red 122, and Pigment Blue 15:4. Although there is no explicit disclosure that the pigment has aromatic rings, given that Sun et al. disclose pigment identical to those utilized in the present invention, it is clear that the pigment inherently has aromatic rings as presently claimed. It is disclosed that the ratio of pigment to dispersant is 1:1 to 5:1 (paragraphs 1, 14-15, 31, 33-35, 40, 42-43, 60, 67, and 72-74).

Attention is drawn to example 2 which discloses ink comprising dispersant, humectant, i.e. glycerol, and surfactant known under the tradename Surfynol 465, i.e. ethoxylated 2,4,7,9-tetramethyl-5-decyn-4,7,-diol. The dispersant is obtained from 23.5 g methacrylic acid (MAA), 48 g Sipomer SEM/25, i.e. polyethylene glycol 2,4,6,-tris-(1-phenylethyl)phenyl ether methacrylate (TRISA), and 12.6 g nonylphenyl propylene glycol acrylate (NPHPPG) with

molecular weight of 450. Using the molecular weight of MAA (86 g/mol), TRISA (1574 g/mol), and NPHPPG (450 g/mol), the amount of each component in grams is converted to moles (noting that Sipomer SEM/25 contains a portion of methacrylic acid), namely, 0.459 moles MAA, 0.03 moles TRISA, and 0.028 NPHPPG, and then to mol%, namely, 88 mol% MAA, 5.8 mol% TRISA, and 5.4 mol% NPHPPG. Further, it is calculated that the ratio of TRISA to MAA and NPHPPG combined is 0.062, i.e. about 1 to 16, and that the ratio of MAA to TRISA and NPHPPG combined is 7.9, i.e. about 15 to 2.

In light of the above, it is clear that Sun et al. anticipate the present claims.

3. Claims 1-8 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Akers, Jr. et al. (U.S. 6,652,634).

Akers, Jr. et al. disclose thermal ink jet ink comprising 0.1-10% pigment, dispersant, humectant and surfactant. The pigment includes Pigment Yellow 74, Pigment Red 122, and Pigment Blue 15:4. Although there is no explicit disclosure that the pigment has aromatic rings, given that Akers, Jr. et al. disclose pigment identical to those utilized in the present invention, it is clear that the pigment inherently has aromatic rings as presently claimed. It is disclosed that the ratio of pigment to dispersant is 1:1 to 9:1. The surfactant includes those known under the tradename Surfynol which clearly encompasses ethoxylated 2,4,7,9-tetramethyl-5-decyn-4,7,-diol (col.1, lines 8-9, col.2, line 37, col.4, lines 26-27 and 37, col.5, line 66-col.6, line 5, col.6, lines 17-40 and 64-67, col.8, lines 50-55, col.9, lines 5-8, 44-47, and 56, col.12, lines 51-52, col.25, line 26-col.26, line 38).

Attention is called to dispersant E (col.10, lines 49-62) which is dispersant containing methacrylic acid (MAA), Sipomer SEM/25, i.e. polyethylene glycol 2,4,6,-tris-(1-phenylethyl)phenyl ether methacrylate (TRISA), and nonylphenyl propylene glycol acrylate (NPHPPG) in molar ratio of 15:1:1 from which it is calculated that ratio of TRISA to MAA and NPHPPG combined is 1/16 and ratio of MAA to TRISA and NPHPPG combined is 15/2, Further, it is calculated that the dispersant comprises approximately 88 mol% MAA, 6 mol% TRISA and 6 mol% NPHPPG.

In light of the above, it is clear that Akers, Jr. et al. anticipate the present claims.

4. Claims 1, 3, 9, 11-12, and 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Sacoto et al. (U.S. 2004/0102541).

Sacoto et al. disclose ink comprising 0.1-10% pigment, humectant, surfactant, and dispersant containing 18-84 mol% hydrophilic polymeric segment that is obtained from methacrylic acid, 1.5-50 mol% polymeric stabilizing segment obtained from 2,4,6-tris-(1-phenylethyl)phenoxy polyethyleneoxy methacrylate and nonylphenyl propylene glycol acrylate, and 13-50 mol% hydrophobic polymeric segment. The pigment includes Pigment Yellow 74, Pigment Red 122, and Pigment Blue 15:4. Although there is no explicit disclosure that the pigment has aromatic rings, given that Sacoto et al. disclose pigment identical to those utilized in the present invention, it is clear that the pigment inherently has aromatic rings as presently claimed. It is disclosed that the ratio of pigment to dispersant is 1:1 to 9:1. The surfactant includes those known under the tradename Surfynol which clearly encompasses ethoxylated 2,4,7,9-tetramethyl-5-decyn-4,7,-diol (paragraphs 1, 8, 14-15, 17, 21-22, 29, 34, 53-54, 56-57).

Attention is drawn to example 8 and example 10 which each disclose the use of dispersant containing methacrylic acid (MAA), 2,4,6-tris(1-phenylethyl)phenyl ether methacrylate (TRISA), and 4-nonylphenol poly(propyleneoxy) acrylate (NPHPPG). From example 8, it is calculated that the dispersant comprises approximately 58 mol% MAA, 5 mol% TRISA and 19 mol% NPHPPG and that the ratio of MAA to TRISA and NPHPPG combined is about 2.5. From example 10, it is calculated that the ratio of TRISA to MAA and NPHPPG combined is 0.13, i.e. about 2 to about 15.

While there is no disclosure that the ink jet ink is a “thermal” ink jet ink as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that “if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention’s limitations, then the preamble is not considered a limitation and is of no significance to claim construction”. Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner’s position that the preamble does not state any distinct definition of any of the claimed invention’s limitations and further that the purpose or intended use, i.e. thermal ink jet ink, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art ink and further that the prior art ink which is

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identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

In light of the above, it is clear that Sacoto et al. anticipate the present claims.

NOTE: It is noted that the dispersant of Sacoto et al. is also obtained from hydroxyalkyl (meth)acrylate in addition to MAA, TRISA, and NPHPPG as described above and that the present claims recite “consisting essentially of” claim language with respect to the dispersant. However, while it is recognized that the phrase “consisting essentially of” narrows the scope of the claims to the specified materials and those which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, “consisting essentially of” is construed as equivalent to “comprising”. Further, the burden is on the applicant to show that the additional ingredient in the prior art, i.e. hydroxyalkyl (meth)acrylate, would in fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant’s invention, See MPEP 2111.03.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akers, Jr. et al. (U.S. 6,652,634).

Akers, Jr. et al. disclose thermal ink jet ink comprising 0.1-10% pigment, dispersant, humectant and surfactant. The pigment includes Pigment Yellow 74, Pigment Red 122, and Pigment Blue. The dispersant contains methacrylic acid (MAA), Sipomer SEM/25, i.e. polyethylene glycol 2,4,6,-tris-(1-phenylethyl)phenyl ether methacrylate (TRISA), and nonylphenyl propylene glycol acrylate (NPHPPG). Although there is no explicit disclosure that the pigment has aromatic rings, given that Akers, Jr. et al. disclose pigment identical to those

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utilized in the present invention, it is clear that the pigment would inherently has aromatic rings as presently claimed. It is disclosed that the ratio of pigment to dispersant is 1:1 to 9:1 The surfactant includes those known under the tradename Surfynol which clearly encompasses ethoxylated 2,4,7,9-tetramethyl-5-decyn-4,7,-diol (col.1, lines 8-9, col.2, line 37, col.4, lines 26-27 and 37, col.5, line 66-col.6, line 5, col.6, lines 17-40 and 64-67, col.8, lines 50-55, col.9, lines 5-8, 44-47, and 56, col.12, lines 51-52, col.25, line 26-col.26, line 38).

Attention is called to dispersants D and E (col.10, lines 49-62) which contain methacrylic acid (MAA), Sipomer SEM/25, i.e. polyethylene glycol 2,4,6,-tris-(1-phenylethyl)phenyl ether methacrylate (TRISA), and nonylphenyl propylene glycol acrylate (NPHPPG) in molar ratio of 9:1:1 and 15:1:1, respectively, from which it is calculated that ratio of TRISA to MAA and NPHPPG combined is 1/10, i.e. 0.1 or about 2 to about 15 (0.13), and 1/16, respectively.

The difference between Akers, Jr. et al. and the present claimed invention is the requirement in the claims of the ratio of MAA to TRISA and NPHPPG combined.

There is no explicit disclosure in Akers, Jr. et al. of ratio of MAA to TRISA and NPHPPG combined as presently claimed.

However, it is disclosed that in the dispersant the ratio of hydrophilic portion, i.e. MAA, to hydrophobic portion, i.e. TRISA and NPHPPG, is 4:1:1 to 40:2:1. Further, it is disclosed that the hydrophilic portion is responsible for controlling the solubility of the dispersant and the stability of the dispersion while the hydrophobic portion anchors the dispersant to the pigment (col.4, lines 26-345 and 53-54 and col.6, lines 64-67).

In light of the above, it would have been within the skill level of, as well as obvious to one of ordinary skill in the art, to choose ratio of MAA to TRISA and NPHPPG combined, including at most about 3 parts to 1 part as presently claimed, in order to control the solubility of the dispersant and the stability of the ink, and thereby arrive at the claimed invention.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Suthar et al. (U.S. 6,255,370) disclose ink comprising dispersant obtained from methacrylic acid and nonylphenyl propylene glycol acrylate, however, no disclosure of poly(ethylene glycol) 2,4,6-tris-(1-phenylethyl) phenyl ether methacrylate as presently claimed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
5/13/05